1. Independent Claim 1 and its Dependents

Independent claim 1 recites a scanning apparatus which includes a first stage and a second stage that are in contact with both a first coupler and a second coupler which are aligned along the same axis. On page 4 of the Final Office Action dated October 22, 2002, the Examiner has alleged that the Applicants stated in "Amendment A" dated July 16, 2002, that the use of two couplers is necessary for a scanning apparatus to function, and that since Asano discloses a scanning apparatus, the disclosure of Asano suggests multiple couplers. **The Applicants respectfully submit that the Examiner has mischaracterized the statements made in "Amendment A," and that there is no statement in "Amendment A" which even remotely implies that two couplers are necessary for any/every scanning apparatus to function.** On page 5 of "Amendment A," the Applicants stated that "The use of two couplers allows scanning, *e.g.*, acceleration of a first stage, in two directions along an axis to benefit from the use of the couplers (Specification, on from page 14 at line 27 to page 15 at line 3)." The use of two couplers is a feature of claim 1. At no point do the Applicants imply that every stage apparatus requires the use of two couplers, and contrary to the Examiner's assertions in the Final Office Action, the Applicants have made no admission that the invention of Asano would not work without at least two couplers. It is submitted that Asano only discloses the use of one coupler so, unless the stage disclosed by Asano is non-functional, the stage of Asano appears to function with the use of a single coupler.

Claim 1 requires a scanning apparatus with both a first coupler and a second coupler. Scanning in a first direction may allow the second stage to scan through the first coupler, and scanning in a second direction may allow the second stage to scan through the second coupler. Further, a first stage may accelerate in two directions along an axis due to the presence of two couplers.

It is respectfully submitted that the use of more than one coupler is neither shown nor remotely suggested by Asano. As shown in Fig. 1 of Asano and as discussed in the corresponding description, Asano teaches of only a single spring element which couples a positioning stage with an acceleration/deceleration stage. Neither Doran et al. nor Asano, alone or in combination, teaches of or even reasonably suggests the use of more than one coupler. Therefore, claim 1 and each of its dependents are believed to be allowable over the art of record for at least this reason.

2. Independent Claim 33 and its Dependents

Like independent claim 1, independent claim 33 also requires the use of a first coupler and a second coupler and is, therefore, believed to be allowable over a combination of Doran et al. and Asano because Asano does not suggest the use of more than one coupler. The first coupler of claim 33 couples a first surface to a stage mechanism, and the second coupler couples a second surface to the stage mechanism. The first coupler is in a first state when the first stage mechanism moves along a first axis in a first direction, while the second coupler is in a second state. There is no teaching or suggestion in the art of record of using a first coupler and a second coupler which are in a first state and a second state, respectively, when a stage mechanism moves in a first direction.

With regards to claim 33, the Examiner has asserted on page 5 of the Final Office Action that "couplers having different states is an inherent result of the obvious matter of design choice of locating the two couplers of Asano on opposite ends of a course stage." As discussed above, the Applicants respectfully submit that Asano does not teach or reasonably suggest the use of more than one coupler. Hence, there is no "inherent result or an obvious matter of design choice" with regards to positioning two couplers, as Asano only teaches of one coupler. Since neither Doran et al. nor Asano, alone or in combination, teach or even suggest using more than one coupler, claim 33 and its dependents are each believed to be allowable over the art of record for at least these reasons.

3. Independent Claim 25 and its Dependents

Independent claim 25 recites a scanning apparatus which includes a coarse stage and a fine stage which are effectively coupled using a first cord. The first cord has a relatively high transmissibility and is substantially stiff when the coarse stage accelerates in a first direction along a first axis. When the coarse stage accelerates in a second direction along the first axis, the first cord is substantially slack and has a relatively low transmissibility. Hence, the stiffness of the first cord varies, along with the transmissibility, varies depending upon the direction in which acceleration occurs.

On page 4 of the Final Office Action, the Examiner has stated that Asano discloses the claimed invention except for stating that passive elements are cords, and that it would have been an obvious design choice to use a cord as a passive element. The Applicants respectfully submit that neither Doran et al. nor Asano, alone or in combination, teach of a coupler for which the stiffness or

the transmissibility changes depending upon a direction or acceleration. **Asano teaches that during acceleration/deceleration, the rigidity of a passive element or a spring element is high** (Asano, paragraph 0035). Hence, Asano teaches **against** the rigidity, or stiffness, of the spring element ever being low during acceleration/deceleration, as required in claim 25. In addition, contrary to the Examiner's assertions, the Applicants submit that Asano does not teach of or suggest the use of a cord between two stages. The cord is substantially slack (not rigid) during acceleration in a second direction, and the cord is substantially stiff (rigid) during acceleration in a first direction, as required by claim 25. Hence, the cord may have either a high rigidity or a low rigidity during acceleration, depending upon a direction of acceleration. In other words, a cord has characteristics which go against the teachings of Asano that during acceleration/deceleration, the rigidity of a passive element is always high and, as such, it is respectfully submitted that not only does Asano not teach the limitations of claim 25, the coupler of Asano can not possibly be a cord. Accordingly, claim 25 and its dependents are each believed to be allowable over the art of record for at least these reasons.

4. Independent Claim 14 and its Dependents

Independent claim 14 recites a scanning apparatus which includes a coarse stage and a fine stage which are effectively coupled using a first coupler. The first coupler has a relatively high transmissibility when the coarse stage scans in a first direction along a first axis, and a relatively low transmissibility when the coarse stage scans in a second direction along the first axis. It is respectfully submitted that the coupler of Asano is not a coupler for which the transmissibility changes depending upon a scanning direction. Asano specifically teaches that during acceleration/deceleration, it is preferable that the rigidity of a spring element (coupler) be high (Asano, paragraph 0035). Asano teaches against the rigidity of the spring element ever being low during acceleration/deceleration (scanning).

On page 4 of the Final Office Action, the Examiner has stated that Asano teaches that "the transmissibility of a coupler changes when the flexible volume changes i.e. the instant the course [sic.] stage changes direction of scanning." The Examiner refers to Fig. 2, which according to Asano in his description of figures, is a plot of spring element rigidity and spring element flexible volume. Nothing in Fig. 2 appears to have a relationship to a scanning direction. Once again, the Applicants respectfully submit that there is no teaching or suggestion in any of the art of record, including Asano, that the transmissibility of a coupler changes from a high transmissibility to a low

transmissibility depending upon the direction of scanning. While the rigidity of the coupler of Asano may change when a flexible volume changes, it is submitted that contrary to the Examiner's assertions, there is no teaching or suggestion in Asano that the flexible volume of a coupler and the transmissibility of the coupler change the instant a coarse stage changes a direction of scanning.

It is respectfully submitted that Doran et al., in combination with Asano, teaches that the rigidity of a spring element always has the same transmissibility irregardless of a direction in which a stage is scanned. Therefore, claim 14 and its dependents are all believed to be allowable over the art of record for at least this reason.

5. Independent Claim 39 and its Dependents

Independent claim 39 requires that a transmitter which is disposed between a first stage and a second stage transmits force between the first stage and the second stage when a driving device accelerates the first stage in a first direction. The transmitter does not transmit a force between the first stage and the second stage when the driving device accelerates the first stage in a second direction. Since Asano teaches of a single spring element (transmitter) which drives a positioning stage whenever an acceleration/deceleration stage accelerates (Asano, paragraphs 0034 and 0035), it is respectfully submitted that no combination of the art of record teaches of or suggests a transmitter which is arranged to transmit force when acceleration is occurring in one direction along an axis, and not arranged to transmit force when acceleration is occurring in another direction along the axis, as required by claim 39. The Applicants respectfully submit that contrary to the Examiner's assertions in the Final Office Action, Asano does not teach of rigidity changing characteristics of couplers which are arranged to transmit force during acceleration in one direction and not arranged to transmit force during acceleration in another direction. Instead, Asano appears to teach that during acceleration in any direction, the rigidity of a spring element is high (Asano, paragraph 0035). Accordingly, claim 39 and its dependents are believed to be allowable over Doran et al. in view of Asano for at least this reason.

6. Independent Claim 43 and its Dependents

Independent claim 43 requires that when a first stage accelerates in a first direction along an axis, a transmitter causes a second stage to accelerate by transmitting a force between the first stage and the second stage. However, when the first stage accelerates in a second direction along the axis,

the transmitter does not transmit force between the first stage and the second stage. As discussed above with respect to claim 39, none of the art of record teaches of a transmitter (*e.g.*, spring element) which transmits force when acceleration occurs in one direction along an axis, and does not transmit force when acceleration occurs in another direction along the axis. Asano specifically teaches that during acceleration, a drive force is conveyed via a spring element (Asano, paragraph 0034), and does not teach of a drive force not being conveyed by the spring element during acceleration. Therefore, claim 43 and its dependents are believed to be allowable over the art of record for at least this reason.

In view of the above, the Applicants believe that all pending claims are allowable and respectfully request a Notice of Allowance for this application from the Examiner. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below. If any fees are due in connection with the filing of this amendment, the Commissioner is authorized to charge such fees to Deposit Account 50-1652 (Order No. NRCAP003).

Respectfully submitted,

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